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BUMED NEWS LETTER

a digest of timely information

Editor - Lt. Comdr. Samuel Nesbitt, (MC), U.S.N.R.

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Shock: In spite of the concentration of the nation's research scientists and clinicians upon the problem, the fundamental nature and etiology of "shock" remain unknown. Technics for the production of shock in the laboratory have

been so varied that reports on experiments frequently raise the question as to whether the conditions produced are comparable to the clinical shock syndrome. In fact, "shock" has been experimentally produced by hemorrhage, the application of tourniquets, crushing ligation, occlusion of blood vessels, by the injection of an inert mass, generalized trauma, drugs, missile impact and by burning.

As far as is known, shocked tissues primarily are anoxic tissues, owing to circulatory collapse with resultant failure in oxygen supply. This anoxia, when sufficiently prolonged, ushers in the "irreversible stage" of shock, at which point the tissues are no longer capable of response to a restored circulation and adequate oxygen, the general cellular metabolism having become so deranged that the normal homeostatic mechanisms fail to operate. However, fundamental studies upon cell and tissue metabolism, while they have perhaps led to a better understanding of the generalized effects of shock upon the body as a whole, have resulted in little knowledge directly applicable to shock therapy.

Capillary permeability in the shock state has been intensively studied, and such investigations have led to a modification of our conception of the role of plasma loss from blood stream to tissues. Thus, the classic theory of "white hemorrhage" (due to a generalized altered capillary permeability) has been modified into the conception of limitation of capillary leakage to the area of insult only.

Blood replacement therapy perhaps received the lion's share of attention during the war. Following inauguration of the plasma program, efforts were directed to developing a practical blood substitute. No dissenting voice has yet been raised to the use of whole blood as the fluid of choice. Following the failure of a program of research on blood substitutes of animal origin, a vast amount of work was done on synthetic substitutes - sodium chloride, glucose, inert substances of high osmotic pressure, sodium lactate, pectin, gelatin, and amino acids being among the materials tested both in the laboratory and clinic. Of these, sodium chloride, lactate and gelatin have yielded the most promising results. In actual use, the whole blood program coupled with efficient and rapid transportation by air to the combat theaters proved most helpful. Thus, practically no change has taken place in replacement therapy with the exception of the wide use of plasma. With the recent and wise emphasis on the use of whole blood we cannot claim any truly revolutionary change in replacement therapy since technics of blood transfusion first became prevalent.

With the use of whole blood, a word of caution has been reiterated in reference to patients who apparently recover from the effects of injury but subsequently, without any recognized exciting cause, sink suddenly into deep shock.

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There is urgent need for recognizing this deceptive state to avoid deaths on the operating table. Deaths due to anuria and occurring from the fifth to the tenth day after onset of illness may be associated with the therapeutic use of whole blood or of any of the common substitutes.

The treatment of shock by means of drugs and organotherapy has not met with signal success. Pressor substances are all rather transient in action and are contraindicated when bleeding is present. The use of cortico-adrenal extracts and of desoxycorticosterone acetate in shock is based upon the rationale of these effects upon capillary permeability as well as upon electrolyte and carbohydrate metabolism. The possible role of potassium intoxication in shock has been stressed by some observers and cortico-adrenal preparations recommended on this basis. On the whole, it is doubtful that on the basis of present knowledge the use of drugs and biologicals may be accepted as a part of therapy in shock.

Numerous claims have been advanced concerning the presence of depressor substances, "shock factors" and "shock toxins", in the blood of experimental animals. The literature has become highly conflicting, the best evidence being against these theories. Although the toxic theory of shock has been long intrenched in physiological thought, the existence of toxic substances in this condition remains debatable. Such a substance emanating from crushed muscle has been identified as adenosinetriphosphate. On the other hand, rather convincing cross-transfusion experiments have been entirely negative.

The role of the central nervous system in shock has never been systematically or thoroughly investigated. The validity of the opinion that the central nervous system is primarily involved in the etiology of the condition appears to be almost self-evident. The generalized reflex inhibition of shock, its presence following intense pain, and the fact that certain anesthetics, nerve block, freezing technics, etc., have a beneficial effect, all point to a primary involvement of the central nervous system. According to this view, circulatory failure is brought about through a sequence of manifestations of nervous dysfunction.

Recently much interest has been focused upon the so-called "fluid spaces" in health and disease, with particular emphasis upon sodium chloride and thiocyanate. In shock, sodium and thiocyanate are increased in the tissues, with reduction in circulating plasma volume particularly notable at the site of insult (burns, trauma). These fluid shifts are certainly of importance and interest, but they are self-limited and should be looked upon as secondary to more fundamental phenomena.

The therapeutic regime in shock continues to point toward re-establishing normal blood volume and pressure, together with general restorative measures in a cool atmosphere. (Res. Div., BuMed - E. L. Corey)

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Fluid Spaces: In view of recent interest in the changes occurring in body fluids or "spaces" as a result of physical, chemical or infectious insults, a brief resume of methods of studying these spaces is considered appropriate.

Total plasma volume is measurable by a number of methods. One of the most accurate is that which involves injection of Evans' blue dye (T-1824), with subsequent determination of its concentration in the plasma. This substance leaves the plasma very slowly and does not enter cells, hence its usefulness in measuring plasma volume.

Total blood volume is calculated from the plasma volume and hematocrit.

Total extracellular volume or space (i.e., plasma volume plus extracellular tissue fluid volume) may be estimated in two ways:

1. Radioactive sodium is injected intravenously, and the concentration of radioactive isotope is then determined with a Geiger-Müller counter in specimens of serum drawn at intervals during the first few hours after injection. From these data the sodium space is calculated by means of a formula involving a Donnan factor.

2. Sodium thiocyanate is injected intravenously and the concentration of thiocyanate in the serum is determined colorimetrically at intervals during the first few hours. An extrapolation method is then used to calculate the thiocyanate space.

In normal, hydrated human beings, sodium and thiocyanate are distributed through approximately 25 per cent of the body weight, and the sodium space is nearly the same as the thiocyanate space. The extracellular fluid volume has been considered as the summation in the entire body of many fluid phases in various kinds of tissue. Distribution of sodium and thiocyanate probably varies from one tissue to another. Nevertheless, in normal persons, the apparent volume of distribution of sodium and thiocyanate, determined between certain intervals after injection, measures a definite fraction of the body fluids which approximates the extracellular fluid volume. Measurement of this fraction is possible because sodium and thiocyanate enter cells slowly. Sodium is, in fact, the principal naturally-occurring cation of the plasma and extracellular fluid.

Extravascular fluid volume or space is calculated by subtracting the plasma volume from the total sodium or thiocyanate space.

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Typical of recent reports on body fluids is that by Moore and Cope, who found that in severely burned human patients, there occurred during the first four days of illness: (1) a reduction in plasma volume; (2) an early and massive increase in radiosodium space; (3) an increase in the thiocyanate space which was more gradual, i.e., sodium entered tissue cells more readily than thiocyanate and therefore the apparent sodium space was temporarily greater than the thiocyanate space; (4) a tissue picture indicative of increased water content.

From the fourth to the fourteenth day there were noted: (1) a tendency for plasma volume to be maintained if adequate water and protein were provided; (2) return of sodium space toward normal; (3) residual elevation of thiocyanate space; (4) a tissue picture indicative of relative dehydration.

Rutstein and coworkers found that in pneumonia there was a substantial increase in plasma volume and extravascular thiocyanate space during the acute phase of illness. It was suggested that these findings offered a partial explanation for the frequency of congestive heart failure in this disease.

It should be emphasized again that the fluid shifts following injury and infection are to be regarded as secondary to more basic phenomena. (Res. Div., BuMed - L. E. Young)

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Intravenous Clotting: Simon points out that the syndrome formerly referred to as thrombophlebitis is now differentiated into thrombophlebitis and phlebothrombosis. Clotting of the blood in thrombophlebitis is the result of injury to the vascular endothelium from mechanical trauma, bacterial invasion or chemical injury. In phlebothrombosis the thrombus results from stasis and alterations in the clotting tendency of the blood. In thrombophlebitis the clot is firmly adherent to the venous wall and is not likely to become detached as an embolus, while in phlebothrombosis the clot is loosely attached to the vessel wall and is likely to cause embolism.

The clinical manifestations of the two types of clotting are quite different. In thrombophlebitis there is usually fever as well as pain and swelling in the region of the involved vein. Patients with phlebothrombosis may have no symptoms at all. They frequently have a feeling of impending disaster, but no pain or fever and usually no swelling.

Phlebothrombosis should be suspected in a patient who shows unusually rapid pulse and tenderness of the feet or calves. It is in this type of patient that from the eighth to the tenth day postoperatively, when preparing to get out of bed or while straining at stool, the dramatic syndrome of pulmonary embolism occurs. When the diagnosis of phlebothrombosis is made, aspiration

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of the thrombus and division of the vein should be done. Thrombophlebitis responds dramatically to sympathetic ganglion block. (Conn. State M. J. April '45)

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Venous Thrombosis and Pulmonary Embolism: According to Linton, bilateral femoral-vein interruption is a safe procedure which will prevent massive, fatal, pulmonary embolism in patients with deep venous thrombosis of the lower extremities. The operation should be carried out on patients who have developed non-fatal, pulmonary embolism, even though no positive signs of venous thrombosis in the legs can be detected, and on any patient who develops deep phlebitis of the lower extremities. Interruption of the femoral vein should be done on both sides even if venous thrombosis is diagnosed on only one side, since it has been demonstrated that patients treated by unilateral femoral-vein interruption have died from a massive pulmonary embolus originating from the unligated side. Thrombectomy by aspiration, in cases of femoral and iliac thrombosis, has been demonstrated to be a safe procedure. This should be done as early as possible after the diagnosis has been established. It reduces pain and swelling in the leg, hastens recovery and prevents massive, fatal, pulmonary embolism. As the result of femoral-vein interruption, no deaths have occurred in 202 cases. The morbidity of thromboembolic disease is tremendously reduced by this operation. Interruption of the inferior vena cava distal to the renal veins is the operation of choice in cases of long-standing thrombophlebitis with pulmonary embolism. (Conn. State M. J., April '45)

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Abdominal Manifestations of Rheumatic Fever: The not infrequent occurrence of abdominal pain in patients with rheumatic fever has long been recognized and this condition has generally been attributed to peritoneal involvement by the rheumatic process. Reitman has studied four patients with rheumatic fever who complained initially of pain in the right lower quadrant which was limited to the right rectus muscle and which he believes was due to myositis of that muscle. These cases presented the difficult differential problem of appendicitis and the question of operation was considered in each. One patient had such clear-cut signs, including tenderness on rectal examination, that operation was essential. An important diagnostic feature was the prompt relief, within from 12 to 24 hours, of symptoms and signs upon the administration of salicylates in therapeutic doses. It is possible that the use of procaine injection of the rectus muscle may be a valuable differential diagnostic test in such cases.

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In general, when a young patient with a rheumatic history or signs of rheumatic valvular damage presents himself because of abdominal pain in the right lower quadrant, without nausea or vomiting, having right rectus spasm with tenderness over McBurney's point, no rebound tenderness, and running a moderate fever, one must seriously consider an abdominal form of rheumatic fever, most likely due to myositis of the rectus abdominis muscle. This possibility would be further substantiated by the findings of an elevated sedimentation rate, leukocytosis with a normal Schilling count and rapid subsidence of the abdominal picture under salicylate therapy even when the general reaction continues. The presence of a preceding diarrhea and alternation of abdominal and joint phenomena are striking findings reported in the literature. (Ann. Int. Med., May '45)

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Skin Lesions of Rheumatic Fever: Erythema multiforme and erythema nodosum are conditions frequently associated with joint pains and slight fever. Therefore, they came to be considered as specific lesions of rheumatic fever. A confusing factor has been the occurrence of skin lesions associated with rheumatic fever which, in a general way, resemble erythema nodosum and erythema multiforme. From an analysis of the number of rheumatic fever patients having classical erythema nodosum and erythema multiforme, and of persons with these diseases having rheumatic fever or some evidence of cardiac lesions, it can only be concluded that these conditions have no relationship to rheumatic fever.

Erythema annulare rheumaticum is a circinate or gyrate, macular, erythematous eruption which occurs only in rheumatic fever. Some observers believe that the lesion is so characteristic that a diagnosis of rheumatic fever may be established by its presence alone. The lesions are most common on the trunk, less prominent on the upper arms and legs. They are never seen on the face. The lesions consist of rather bright pink circinate and gyrate lesions which, while visible, are not palpable. The lesions first appear, or become more prominent, after the subject has stood a few minutes with the skin bare. The rings are usually a centimeter or two in diameter, but may become as large as three inches in diameter. The pattern changes from hour to hour. The eruption often completely disappears and reappears from day to day. The sharpness of outline of the lesions varies. In bright florid cases, the lesion is sharply outlined and appears to be at the skin surface. In less marked cases, the lesions are vaguely outlined and gradually fade into a bluish, cyanotic, network which seems to be a little deeper beneath the surface than the lesions of the florid cases. This condition merges into one which is indistinguishable from an increased mottling of the skin. As a result of following the course of several individuals

through this last stage, it is believed that this mottling is significant. It seems to be a variation of the true erythema annulare. When the lesions are small and solid, they produce a morbilliform appearance. This is not uncommon. The macular annular lesions usually remain macular at all times, although in one or two cases transition into the elevated ringed form has been observed. Usually, however, the elevated form is raised from the beginning. The border is smooth, not at all scaly, and the lesion is continuous rather than consisting of a group of papules. Except for the raised border, the lesions are identical in appearance with the non-elevated form. The edges of the elevated from sometimes become urticarial, in which case the lesions resemble an annular urticaria so closely that a distinction may be very difficult. Differentiation is further complicated by the fact that the rheumatic lesions come and go in the same fleeting manner as urticaria. Many believe that urticaria is occasionally caused by rheumatic fever itself. In the Corona Naval Hospital much more urticaria has been present in the rheumatic fever population than would be expected in an average hospital population. The exact cause of the urticaria was not determined in most of these cases. However, it is believed that the urticaria in some of the cases has been either a direct manifestation of rheumatic fever or an indirect effect, the patient having an increased susceptibility to the ordinary causes of urticaria as a result of vascular instability associated with rheumatic fever.

Another distinctive type of lesion which has been observed in patients with rheumatic fever has consisted of large, elevated, slightly edematous, doughy plaques usually appearing early in the course of the disease. Often they are located over affected joints. Large lesions may have a somewhat erysipeloid appearance. In contrast to the lesions of erythema annulare, they respond to salicylates as do the arthritic manifestations. As a variation of this type, patients have had lesions varying from 2 cm. to 3 cm. scattered over the extremities and sometimes the trunk. These lesions may have a certain resemblance to erythema multiforme, or, if quite indurated and over the shins, to erythema nodosum. This type of lesion, while undoubtedly caused directly by rheumatic fever, can also be produced by drugs and other agents. For this reason, it is not as completely characteristic of rheumatic fever as is erythema annulare rheumaticum.

There have been few pathological reports concerning erythema annulare. Carol and Krieken described a polymorphonuclear inflammatory infiltration about dilated vessels in the upper cutis. Keil's findings were much the same. He found the same type of infiltrate, with some tendency to palisade arrangement and some edema of the blood vessels. Among the cases herein reported, a biopsy was obtained in a florid case of erythema annulare which had rings about three inches in diameter. The skin was completely normal. This does not seem unreasonable, as the condition changes so rapidly that one might

expect to find little in the nature of inflammation other than dilated blood vessels which might contract when the biopsy tissue is fixed.

Some observers state that the presence of erythema annulare is of prognostic significance, in that it is always associated with cardiac changes. Others take a less serious view, and Campbell and associates agree that erythema annulare should not always be considered as an unfavorable prognostic sign pathognomonic of endocarditis.

Subcutaneous nodules from fibrous to bony hardness, which are attached to the tendons, ligaments and fasciae have long been recognized as lesions of rheumatic fever. They are not, however, completely specific for this disease, similar nodules being seen in other conditions, particularly syphilis, yaws and rheumatoid arthritis.

It is agreed by most authorities that the presence of nodules indicates a severe type of infection, with likelihood of cardiac involvement. Among the patients with subcutaneous nodules in this series, twenty-five (fifty-four per cent) showed definite cardiac damage and four others temporary damage. Salicylates had little therapeutic effect and nodules often appeared while the patient was on full dosage of salicylates. In thirteen cases, the nodules appeared with the onset of the acute symptoms and in twenty-five, they appeared later during the active stage. Occasionally nodules occurred when all other evidence of activity had disappeared. All patients with numerous nodules had severe rheumatic fever.

Purpura occurs not uncommonly in patients with rheumatic fever, most frequently at the onset of the acute attack, and most often on the lower legs and ankles. Occasionally, it occurs when the patient first becomes ambulatory after an attack. The bleeding and clotting times are not prolonged, but the tourniquet test is usually positive. Purpura is not responsive to salicylates and no prognostic significance is attached to its occurrence. (U. S. Nav. Hosp., Corona, Calif. - Campbell et al)

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X-Ray Burns Resulting from Fluoroscopy: The use of small, shock-proof and "ray-proof" X-ray units in connection with military and industrial work is widespread. The fact that these units are just as capable of producing serious burns in both patients and operator as were the old fashioned "exposed" units of a generation ago is not realized by many. Indeed, many of the small units are apt to be more dangerous than the large ones for the reason that, being portable and shock-proof, they can be brought much closer to the patient than could the older, heavier or non-shock-proof units. The lack of

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adequate distance between the X-ray tube and the patient's skin is one of the chief sources of danger, since the intensity of radiation varies inversely as the square of the distance.

The accompanying table will illustrate the importance of sufficient distance between tube and patient in X-ray work of any type: The factors are the average fluoroscopic ones of 75 kilovolts and 5 milliamperes, with a filter of 0.5 mm. of aluminum.

Distance of Patient's Skin from Focal Spot of Tube	Output (In Roentgens per Minute) Measured in Air	Erythema Time if Exposure is at One Sitting or at Closely Spaced Sittings
10 cm.	250 roentgens	1 minute
25 cm.	40 roentgens	6 minutes
50 cm.	10 roentgens	24 minutes

Most small, portable X-ray units are customarily operated at from 60 to 80 kilovolts and at from 3 to 5 milliamperes. Variation of these factors produces the following influence on X-ray output:

Increase of 10 kilovolts increases the output approximately twice.
Increase of milliamperage increases the output in approximately direct ratio (i.e., an increase from 3 to 6 milliamperes doubles the X-ray output).

If three factors - adequate distance, reasonable voltage and low milliamperage - are observed, the average operator is not likely to cause serious damage, except in connection with search for foreign bodies and the reduction of fractures. Experienced radiologists employ the fluoroscope sparingly and then only with very small beams (about 3 inches square) in the search for foreign bodies. Since the vast majority of metallic foreign bodies are innocuous, most surgeons refrain from adding insult to injury by exploring for them; therefore, the problem of burns from fluoroscopic aid in foreign body removal is properly small. Unfortunately the same cannot be said for the reduction of fractures. Despite the pleading of experienced orthopedists, many physicians are prone to use the fluoroscope during (instead of briefly after) the attempted reduction of fractures. Intent on examination, the seconds become minutes before the operator has realized it, and the safe or tolerance period of fluoroscopic observation has been exceeded. The skin of the patient and, too often, of the operating surgeon, has been irreparably damaged. Subcutaneous tissues, muscles and even bones have been permanently injured.

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Recently reported has been the case of four patients who received serious and temporarily incapacitating burns of the skin over the lumbar area during gastrointestinal fluoroscopic examination by a physician (not a specialist), all in a single day. They were disabled for periods of from three to four months, and have permanent skin and soft tissue changes in the affected areas. This series of fluoroscopic burns could have been prevented by the following simple measures:

(a) The use of a safe distance (12 to 18 inches) between the X-ray tube and the nearest portion of the patient's skin.

(b) The use of a filter (1 mm. of aluminum or equivalent) in the X-ray beam.

(c) The use of proper speed or dispatch in examination (not over three minutes of actual exposure in any examination period; not over four such periods in a month).

(d) Adherence to standard safety factors in operating the fluoroscopic unit (voltage about 75 kilovolts, current about 3 milliamperes, beam rarely larger than 6 inches square and usually half that size and, above all, proper preparation of the examiner - dark adaptation of the eyes for at least ten full minutes before commencing any fluoroscopic work).

Any X-ray unit is dangerous, but the small portable X-ray unit in the hands of those unfamiliar with its hazards is perhaps the most dangerous of all, especially when used for fluoroscopy without cone or guard. (J.A.M.A., Oct. 6, '45 - Garland)

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Streptomycin in Treatment of Clinical Tuberculosis: A Preliminary Report

From preliminary impressions obtained from the study of 34 patients who had tuberculosis and were treated with streptomycin during the past 9 months, it appears probable that streptomycin has exerted a limited suppressive effect, especially on some of the more unusual types of pulmonary and extrapulmonary tuberculosis in this small series of patients. However, while the reproduction of Mycobacterium tuberculosis may have been temporarily inhibited by the treatment, no convincing evidence was obtained of rapidly effective bactericidal action.

As long as streptomycin remains difficult to procure and the toxic effects of protracted treatment are not understood, it would appear inadvisable to

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utilize this material in treatment of some of the commoner forms of chronic pulmonary tuberculosis in which the patients are not likely to derive striking benefit. For the present, emphasis should be placed on the study of early and extensive hematogenous forms of pulmonary tuberculosis, tuberculosis of the genito-urinary tract, suppurative tuberculous lymphadenitis and early miliary tuberculosis.

It cannot be emphasized too strongly that care in a sanatorium and collapse therapy have been thoroughly proved to be effective therapeutic measures and that in no instance should these be abandoned in favor of treatment with antibacterial agents, such as streptomycin, the range of efficacy of which is yet to be conclusively demonstrated.

It is to be ardently hoped that if these results come to the attention of lay persons, they will be interpreted in the same cautious manner that scientific investigators have endeavored to maintain. This unusual suggestion is made for the benefit of many thousands of patients who have tuberculosis. Morale plays a crucial part in treatment of such a debilitating and chronic disease and morale is injured by premature and optimistic reports of results which may not be sustained in practice. No one as yet actually knows what the final judgment will be concerning the effect of streptomycin on clinical tuberculosis. (Proc. Staff Meet. Mayo Clin., Sept. 5, '45 - Hinshaw et al)

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Transfer of Streptomycin from Maternal Blood to Fetal Circulation: Streptomycin was given to 14 normal women in active labor in single intravenous injections of 250,000 units. Streptomycin was present in the cord blood and amniotic fluid within 19 minutes after intravenous injection into the mother. The concentrations in the cord blood and amniotic fluid were approximately half that found in the maternal blood; small amounts of streptomycin were found in all three of these fluids for a period of five hours or more. (OEMcmr-56, Woltz and Wiley, Univ. of Pa., Ms. for publication - CMR Bulletin #54)

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Chemotherapeutic Agents and Immunity: When penicillin therapy was initiated 4 hours after the intradermal inoculation into rabbits of a virulent, Type I pneumococcus, the development of a local lesion was prevented. There was no antibody response, and these animals reinoculated 12 days later died in from 4 to 5 days. When the initiation of penicillin therapy was delayed to 12 or 24 hours, local and systemic reactions occurred and there was an antibody response. These animals reinoculated 12 days later failed to develop lesions.

When sulfapyridine was administered 4 hours after infection, complete protection was not provided, and when it was delayed 12 and 24 hours, fever and bacteremia persisted for several days. This was accompanied by an antibody response which was not marked.

From a study of the effect of penicillin and sulfapyridine on the antibody response of rabbits to pneumococcus vaccine, it was found that the drugs themselves have no direct influence on the production of antibodies. (Harrison, Univ. of Chicago, Ms. for publication - CMR Bulletin #50)

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The Present Status of Vaccines for Bacillary Dysentery: The multiplicity of types among the many species of Shigella has always presented a formidable obstacle to the preparation of a general purpose vaccine. Nevertheless, the ability of the human organism to develop a reasonable immunity against bacillary dysentery seems to be established. Men who have moved from non-endemic areas into endemic areas frequently report one or two attacks of clinical dysentery during the first year of sojourn in the endemic region; thereafter, they are relatively resistant. A survey of hospital records conducted at the Harriet Lane Home in Baltimore under the auspices of the Committee on Medical Research, and which embraced an average follow-up period of three and one-half years for child subjects, demonstrated on a statistically reliable basis that one attack of bacillary dysentery confers appreciable immunity against subsequent attacks. The existence of naturally acquired immunity strengthens the hope that an effective vaccine can be produced.

Early investigations under contracts with the Office of Scientific Research and Development were directed toward discovering individual Shigella strains which possess broad cross-immunizing characteristics against all Shigella types. This search was not successful. It has been demonstrated repeatedly that vaccines prepared from each of the better-known V, W, and Z Flexner types are able to evoke significant agglutinins and mouse-protective antibodies against the other two. Between the foregoing Flexner types and the Boyd 88 Flexner type, there are slight, but immunologically unimportant, cross-immunizing characteristics. Cross-immunizing features have not been demonstrated at all between Shigella paradysenteriae, Shigella sonnei, and Shigella ambigua. This knowledge has helped to define the strains which will have to be incorporated in a polyvalent vaccine.

Dysentery vaccines when administered subcutaneously in man in high dosage are capable of evoking severe untoward manifestations. The systemic reactions include fever, malaise, nausea, vomiting, diarrhea, cyanosis, and injected conjunctivae. Such symptoms rarely persist longer than 24 or 36 hours.

The local reaction includes erythema, induration, swelling, and tenderness about the site of injection; it is usually associated with tenderness and swelling of the regional lymph nodes. At lower dosage levels systemic reactions are largely eliminated and the local reaction is mild. In general, the immune response, as measured in mouse protection tests, tends to parallel the severity of untoward reactions.

These circumstances have compelled careful evaluation in man of the maximum tolerable dosage. The criterion has been that acceptable dysentery vaccine shall not evoke a more severe reaction than is elicited by the commonly used typhoid vaccines. Present opinion favors a vaccine which contains approximately 2.4 billion bacterial cells per c.c. Such a vaccine is intended for use in doses of 0.5 c.c., 1 c.c. and 1 c.c. administered subcutaneously at weekly intervals. A number of pentavalent vaccines (Flexner V, W, and Z, Boyd 88 and Sonnei) have now been evaluated clinically at or near this dosage level. Reactions have not surpassed the limits of safety; the immune responses have been sufficient to give promise of effectiveness. It is believed that an additional important type, Shigella ambigua, can be incorporated in a hexavalent vaccine without too much loss in antigenic response to each of the six components.

In several laboratories, work under contract with the OSRD has been concerned with attempts to diminish the toxicity of the dysentery antigen without parallel loss of antigenicity. A wide variety of chemical and physical technics has been employed. Progress is being made which gives promise for the future. The somatic antigen of several Shigella types has been isolated in purer form than was possible heretofore. The antigen is a protein-lipid-polysaccharide complex. It has been split into its component parts and from these, new antigens have been synthesized. The evidence does not include an obligatory association between toxic and antigenic properties. However, the toxic part of the molecule is both tenacious and tough. Most manipulations have resulted in greater destruction to the antigenic property than to the toxin.

A useful by-product of these chemical studies has been the elaboration of a method for determining the average amount of antigen contained in a bacterial cell. The method is based on the precipitin reaction. It has been found that different strains of the same species vary significantly in contained amount of somatic antigen and that strains in which the contained antigen is great make the best vaccines. This knowledge is being used in selecting the components of the polyvalent vaccines.

Related attempts have been made to diminish the toxic effect and enhance the antigenic response by preparing vaccines in which the bacterial cells are suspended in an oil-emulsion base. Subcutaneous injection of these vaccines

elicits a transient acute inflammatory reaction and a persistent granulomatous nodule. Experiments with mice have shown the presence of antigen in the granuloma for as long as 16 weeks. Further studies, using humans, are still needed to define the intensity and duration of the immune response as well as the practicability of the procedure. (Weech, Children's Hosp., Cincinnati - CMR Bulletin #54)

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Histoplasmosis: In a study by Palmer of 3,000 persons, of whom 294 had pulmonary calcification not related to tuberculosis or to coccidioidomycosis, 23 per cent had a positive reaction to histoplasmin, a filtrate of broth culture of Histoplasma capsulatum. Great differences were found in the percentage of positive reactions occurring in cases from different geographical regions; six per cent of the cases from Minnesota were positive and 66 per cent of those from Missouri. These results suggest that histoplasmosis is endemic in certain regions, that it may be a frequent cause of pulmonary calcification and that a mild form of the disease may be far more common than is now recognized.

Parsons and Zarafonetis have reviewed 71 cases of histoplasmosis and the subject in general. The infection is apparently worldwide in distribution, and cases are being recognized with increasing frequency. (The infection is not spreading.) The symptoms and signs often resemble those of many other diseases, and correct diagnosis may not be made unless biopsy, culture and other types of examinations are done. There is no specific treatment for the disease. Some observers report that most cases end fatally, but this observation is probably wrong, in view of the results obtained by Palmer. The severest and fatal cases are most apt to be diagnosed; mild ones may escape notice and diagnosis. (Arch. Int. Med., Aug. '45 - Reimann)

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Ascites in Patients with Cirrhosis of the Liver: The level of serum albumin has been said to be the controlling factor in the accumulation of ascitic fluid in patients with cirrhosis of the liver. Several investigators have reported an increased portal pressure in patients with the disease, and this has been conceded to contribute to the development of ascites.

Ralli et al have reported observations on the levels of plasma albumin and globulin in patients with cirrhosis of the liver, with and without ascites. The levels of plasma albumin were low in both groups. Following treatment with diet and intravenous liver extract, reaccumulation of ascitic fluid ceased in six patients, and this occurred before there was any increase in the levels

of albumin in the plasma. Examination of the plasma at monthly intervals in these cases showed no significant increase in the level of albumin for as long as six months after the ascites had been absent.

These observations suggested that the level of albumin in the plasma was not the sole determining factor in the production of ascites. In considering other factors that might induce fluid retention, it seemed possible that the low volume of urine of patients with cirrhosis of the liver might be the cause rather than the result of water retention. The presence of an antidiuretic factor in the urine of patients with nephrosis and premenstrual edema has been reported. On the premise that a similar substance might be present in the urine of patients with cirrhosis and ascites, the antidiuretic effect of aliquots of dialyzed urine from the patients was studied.

The urine of patients with and without ascites and of normal subjects was assayed for its antidiuretic activity. It was found that the urine of patients with ascites, when injected into hydrated rats, delayed the excretion of urine. The urine from patients in whom ascites was never present possessed an antidiuretic effect similar to that obtained with the urine from normal subjects. The urine of patients in whom ascites had been controlled prior to assay had an antidiuretic effect greater than the urine of normal subjects but less than that obtained with urine from patients with ascites. The nature of the antidiuretic substance obtained from the urine has not been ascertained. It is suggested that this antidiuretic substance may have its origin in the posterior pituitary. (J. Clin. Invest., May '45)

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Treatment of Cirrhosis with Salt-Poor Albumin Solution: A group of 5 patients representing several types of hepatic cirrhosis was treated with salt-poor, concentrated human serum albumin, administered intravenously, for periods varying from 1 to 10 days at a dosage of 50 Gm. a day. The patients were maintained on a diet adequate in calories and containing at least 1 Gm. of protein per kg. of body weight. Intake of sodium chloride was restricted.

In the presence of generalized edema, therapy for periods of from 1 to 3 days yielded striking increases in urine volume as compared to control periods. The loss of weight associated with the diuresis was less than would have been expected from the increase in urine volume. In the absence of generalized edema, short periods of treatment with albumin failed to increase the urine volume despite the presence of ascites. The finding of a slow attainment of equilibrium between plasma and ascitic fluid proteins suggests that more intensive and prolonged treatment must be carried out before any conclusion can be reached regarding the ability of albumin to mobilize ascitic fluid. Uniform and striking

increases in levels of serum albumin were proportional to the amount of albumin administered.

Little or none of the albumin administered intravenously was excreted in the urine. Balance studies indicated that approximately 80 per cent of the injected albumin was retained when from 50 to 150 Gm. were administered; with larger doses, approximately 50 per cent was retained.

It is suggested that the promising fields for albumin therapy in liver disease lie (1) in severe cirrhotics who on dietary therapy alone can be maintained in positive nitrogen balance, but without rise in the serum albumin level, and (2) in long-continued hepatitis when anorexia gravely compromises dietary intake and thus prevents attainment of positive nitrogen balance and normal albumin levels. (OEMcmr-139, Thorn et al, Harvard Univ., Ms. for publication - CMR Bulletin #58)

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(Not Restricted)

Internal Derangement of the Knee Joint: Jaekle has analyzed the operative results in a series of 155 cases of torn semilunar cartilage. This analysis shows that lack of immobilization, early exercise and weight bearing give quicker return of function. It indicates that simple excision of bucket-handle tears is sufficient, and in so-called complete excision a thin margin of cartilage should remain. One hundred and thirty-two men (85.16 per cent) were returned directly to regular duty on an average of twenty-five days following operation for injuries incurred from a few days to eleven days before operation. The results justify immediate operation because of the fact that the total time lost from recurrence of injury is considerably longer with conservative treatment. Also, the longer the torn cartilage remains, the more likely it is that joint surfaces will become damaged and that a complete cure cannot be obtained. Hypertrophic fat pads are not generally recognized as a frequent derangement of the knee joint. They warrant operation because of recurrences of symptoms and possible damage to the joint. (Arch. Surg., May '45)

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(Not Restricted)

Surgical Treatment of Parkinsonism: Recent years have seen much investigation into the cause and treatment of paralysis agitans. At present, surgical operations for the relief of this condition must still be regarded as experimental. Klemme of St. Louis and Bucy of Chicago have both relieved the tremor of paralysis agitans by removal of part of the cerebral cortex. Bucy has removed part of the motor cortex, and in each instance the abolition of the tremor has been followed by a certain measure of paralysis of the

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extremities. Kelmme reports that removal of a portion which he terms the "premotor cortex" has not been followed by paralysis, at least not in all cases. The details of Klemme's operations have not been published. Putnam of New York has relieved the tremor by dividing the pyramidal tract in the spinal cord. Meyers and Browder of Brooklyn have relieved the tremor in some cases by removal of part of the basal ganglia.

As yet it has not been possible to assess the relative value of these different operative procedures. None of them, however, can be regarded as a cure. They benefit the patient only by alleviating the tremor which is characteristic of the disease. The other manifestations of the disease remain unaltered. The operations are followed, at least in some instances, by a variable degree of weakness or paralysis of the arm and leg and at times by other undesirable sequelae. The surgical treatment of this condition has not yet reached the stage where it can be routinely recommended. The method is worthy of consideration as an experiment in selected and carefully studied instances. (Current Comment, J.A.M.A., June 2, '45)

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(Not Restricted)

Experience with Sympathectomy in Peripheral Lesions: Severe hyperhydrosis is a late sequelae of many cases of trench foot. Maceration of the skin and secondary infection may continue for long periods despite careful treatment. Preganglionic sympathectomy has given excellent results in many such cases. Marked vasospasm with ulceration, with minimal sweating and gangrene, may follow trench foot, and both conditions benefit by sympathectomy. The patients should be carefully selected for operation after a long period of pre-operative study. Continued pain following trench foot is not likely to be relieved by such measures.

Early sympathectomy seems indicated in traumatic injuries to the major arteries of an extremity, especially the popliteal artery. It may be limb-saving in some instances, and frequently will allow amputation at a lower level. Sympathectomy is of marked benefit to those patients with intermittent claudication in the involved leg following arterial ligation and should be performed at an early date before fibrosis and trophic changes occur.

Marked vasospasm following injury to the leg or foot, demonstrated by paravertebral blocks, will be improved by sympathectomy. The edema does not always disappear following operation, but with increased use of the foot it is always less than before. (Ann. of Surg., July '45 - Kirtley, Jr.)

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(Not Restricted)

Observations on Hand Injuries: Dr. Sterling Bunnell, civilian consultant to the Secretary of War, visited a number of general hospitals in the United States during December 1944, where he examined many patients with injuries of the hands. From this experience he has made the following observations:

Many patients with fractures showed malunion of phalanges and especially of metacarpals, with zigzag positions of fragments and overlapping due to lack of early traction. There were also rotation deformities and shortening. In most cases, the proximal finger joints were stiff and straight. When fixed in this position, they cannot be flexed owing to shortening of the collateral ligaments. This is usually preventable by early traction in flexion and early exercise in flexion.

Often all of the joints of the hand were stiffened from splinting too much of the hand, from not keeping the digits moving, and from splinting for too long a time. Many of these resulted from banjo splinting with fingers and palm straight instead of curved. Almost all wrists in plaster of Paris were in the straight position instead of dorsiflexed. Hands were usually not in the position for function, that is, with wrist dorsiflexed, proximal finger joints flexed, and the thumb opposed. Some of these were the result of muscle imbalance owing to nerve injury, but they were unsplinted. Many hands were too greatly indurated and with large scars and flexion contractures from not having been grafted early.

Splints with which the joints may be drawn into position for function, such as the wrist into dorsiflexion, the proximal finger joints into flexion, and the thumb into apposition, etc., should be made in local brace shops. With plaster of Paris, castex or metal, a splint can be made to correct the deformity of median and ulnar nerve palsy. For radial nerve palsy the light, Oppenheimer wire-spring splint seems desirable as it is cheap and easy to make, fits through the muscles, tendons and joints in forearm and hand. For miscellaneous small splints for digits, strips of inexpensive vinylite sheets may be quickly fashioned as desired by softening and bending them over a Bunsen burner.

Actual use is to be preferred to passive physiotherapy for limbering stiff hands. Although heat therapy for a short time each day is beneficial, rough manipulation of finger joints is harmful, and light and electrical therapy is of very doubtful value. Occupational therapy, on the other hand, gives good results and should be encouraged. There are many excellent devices in occupational therapy which are especially designed for use in the correction of various types of hand deformities. (Bull. U. S. Army M. Dept., March '45)

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(Not Restricted)

The Anoxia Test in the Diagnosis of Coronary Insufficiency: The diagnosis of coronary sclerosis is usually dependent upon the clinical history of pain in the chest or arm which is produced by effort and relieved by rest. In certain cases, a constant correlation exists between the occurrence of pain and the amount of increased demand for work on the heart, but in many other cases the occurrence of pain is not related consistently to increased effort. Because of the vagaries of the symptom complex of angina pectoris, the diagnosis may be difficult to establish. Consequently, any objective method for confirming or excluding a diagnosis of coronary sclerosis would be of interest to the clinician, particularly if the test were applicable from the standpoint of time and material, harmless to the patient, and could be definitely interpreted.

Pruitt et al have employed the anoxia test devised by Levy with only minor modifications. By the use of a reservoir bag and a mask the patient breathes a mixture of 10 per cent oxygen and 90 per cent nitrogen. A tank containing 100 per cent oxygen is included in the apparatus, and a flood valve permits almost instantaneous replacement of the 10 per cent oxygen mixture by 100 per cent oxygen. The test is performed under basal conditions. The usual period of observation is twenty minutes. Electrocardiograms are made before the test and at ten and twenty minutes after the patient begins to breathe the mixture containing 10 per cent oxygen. If the patient experiences pain during the test, an effort is made to secure electrocardiographic tracings before changing to 100 per cent oxygen; however, if the distress seems severe, 100 per cent oxygen is given at once. On completion of the test, 100 per cent oxygen is given routinely for from one to two minutes, a time adequate for the subsidence of cyanosis.

The electrocardiograms should include the three standard leads and the precordial leads designated 4R and 4F (terminology of American Heart Association).

From their studies of the electrocardiographic effects of anoxia by means of this test, Levy and his associates defined certain criteria for the electrocardiographic changes associated with, and indicative of, coronary insufficiency. These were summarized as follows: (1) The arithmetic sum of the RS-T deviations in all four leads (1, 2, 3 and 4F) is 3 mm. or more. (2) Partial or complete reversal of the direction of the T wave in lead 1 is accompanied by an RS-T deviation of 1 mm. or more. (3) Complete reversal of the direction of the T wave in lead 4F is present regardless of any associated RS-T deviation in this lead. Moreover, it was stated that, "strong presumptive evidence of diminution in the coronary reserve is afforded by the occurrence of pain during a test which is electrocardiographically negative. The successful use of pain as an index will depend upon the observer's ability to differentiate it

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from the minor discomfort of an apprehensive subject, and his astuteness in detecting the occasional malingerer''.

Pruitt et al have employed the anoxia test in 289 cases. In 282 instances the test was performed in cases in which some clinical evidence of angina pectoris existed, although in most of these cases this diagnosis could not have been made on the basis of clinical evidence alone. The results were electrocardiographically positive in 71 of the 282 cases (25 per cent).

Of the 92 cases in which the history was suggestive of angina pectoris, the test was electrocardiographically positive in 53.2 per cent. In 19.6 per cent of cases, pain was experienced but there was no significant electrocardiographic changes. In 23.9 per cent of cases, the results of the test were completely negative. In 3.3 per cent of cases, the test was unsatisfactory.

Of 108 cases in which an equivocal history of angina pectoris was obtained, the test was electrocardiographically positive in 19.5 per cent. In 18.5 per cent of cases there was pain but there were no significant electrocardiographic changes.. In 50 per cent of cases the results of the test were completely negative. In 12 per cent the test was unsatisfactory.

Of the 82 cases in which the histories contained few if any suggestions of a true anginal syndrome, the test was electrocardiographically positive in 1.2 per cent. In 11 per cent of cases, there was pain during the test, but there were no significant electrocardiographic changes. In 76.8 per cent of cases, the results of the test were completely negative. In 11 per cent, the test was unsatisfactory.

The occurrence of pain unattended by significant electrocardiographic changes during a test did not impress these observers as an event likely to contribute significantly to the solution of a diagnostic problem.

Twenty-five of 289 tests were regarded as unsatisfactory because one or several unfavorable reactions occurred. In 2 cases in which a brief period of cardiac arrest occurred, the reaction was regarded as dangerous.

In the majority of instances (66.2 per cent) in which the test was electrocardiographically positive, the only significant change consisted of a deviation, usually a depression, of the RS-T segment, totaling 3 mm. or more, in leads 1, 2, 3 and 4F. It is thought that slight increase in height or decrease in negativity of the T wave in lead 4F or 4R more frequently is associated with a history suggestive of angina pectoris than is a depression to the isoelectric or diphasic level of a positive T wave in these same leads. Significant

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changes occurred in lead 4R and not in lead 4F in only four tests, and in lead 4F and not in 4R in only two tests.

The following observations are presented concerning the choice of patients to be subjected to the anoxia test with full recognition of the fact that further work in this field may necessitate a revision of opinion. The anoxia test is not a laboratory short cut to the diagnosis of coronary sclerosis, but is a means of substantiating a diagnosis of angina pectoris based on farily convincing clinical evidence. In support of this conclusion, 53.2 per cent of 92 patients who had a history highly suggestive of angina pectoris had an electrocardiographically positive test, and of 82 patients who had minimal evidence of coronary disease, only 1 had significant electrocardiographic changes during the period of oxygen want.

Use of the anoxia test should be restricted even among acceptable cases to instances in which serious disagreement regarding diagnosis has occurred, and the establishment of a definite diagnosis is of such importance that acquisition of all helpful evidence is imperative. In some cases, the presence of disease of the coronary arteries is of greater significance than in others. For a comparatively young person whose occupation entails much physical exertion or nervous tension, a restricted program of activities is a greater hardship than for an elderly person.

When use of the anoxia test is restricted to individuals selected in compliance with the foregoing standards, the possible danger to the life of the patient and the expenditure of time, effort and materials by the clinician are justifiable in view of the value of the information than can be obtained. (J.A.M.A., July 21,'45)

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(Not Restricted)

Prognosis in Patients with Filariasis: Zeligs has studied the clinical characteristics of filariasis in a large group of Marines who were returned from the South Pacific Area. The following conclusions concerning the course, prognosis, and psychosomatic features of patients with filariasis were derived from this study: (1) Following removal of individuals afflicted with early signs of filariasis from the endemic area, the disease has been shown to run a self-limited course and, after one or more clinical reactivations, it burns out. (2) The rehabilitation and restoration to full duty of individuals with signs or a history of filariasis is, in a large measure, dependent on a combined program of military, vocational, educational and medical training and supervision, this being of special significance in the handling of men previously weakened by prescribed inactivity. (3) No demonstrable impairment of sexual function, either libidinous or procreative, has resulted from this disease. (4) Severe or incapacitating sequelae have thus far occurred in only 0.2 per cent of persons

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with filariasis. (5) The clinical, military, and psychological import of this would-be problem should, within another year or so, have entirely disappeared. (J.A.M.A., Aug. 18, '45)

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(Not Restricted)

Human Factors in Engineering Design: Military machines and group operations, as developed by our Army and Navy, have helped to bring the war to a successful conclusion. During its progress, there were a great number of accidents, mistakes and faulty operations of machines with human operators. Many of these accidents were recorded as being caused by "human error", but many of these errors have been so recurrent that the possibility of "design error" has been suggested. At the request of BuAer, BuMed has established a research project under the title, "Human Factors in Engineering Design" which will be conducted at the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland.

The purpose of this study is to ascertain man's biological capabilities and limitations in operating naval craft and other devices, and to translate these findings into specifications which the designer can incorporate in future construction. Problems of group operations where men must work in teams are also to be considered.

This project is brought to the attention of the Naval Medical Officers in order to stimulate thought on existing problems in design. It is requested that any information gathered by Medical Officers in connection with problems of design be forwarded to the Research Division, BuMed. (Res. Div., BuMed-M. Lawrence)

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Opportunities for Medical Research in the Navy: Medical officers and H(S) officers who are interested in research as a specialty are invited to address communications to the Chief, Research Division, BuMed, stating their wishes and describing their qualifications.

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(Not Restricted)

Clinical Fellowships in Medicine: In order to assist in providing opportunities for postgraduate education in internal medicine for medical officers discharged from the Armed Forces, The American College of Physicians has established a limited number of Clinical Fellowships in Medicine for 1946.

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These fellowships are available to physicians honorably discharged from the Armed Forces who are Fellows, Associates or prospective candidates for Associateship in the College. They are designed to provide opportunity for advanced clinical training in internal medicine or in any of its special fields. They are limited to a term of one year, may start at any time during 1946, and will not be renewable. Assurance must be provided that the applicant will be acceptable in the clinic in which he has chosen to work. The stipend will ordinarily be from $1800 to $3000 depending on individual circumstances.

Application forms for these fellowships will be supplied on request to the American College of Physicians, 4200 Pine Street, Philadelphia 4, Pa., and may be submitted, in duplicate, at any time.

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ALNAV 267 BuMed (Not Restricted) 17 September 1945

Subj: Carrying of Parrots on Naval Craft.

U. S. Public Health Service is greatly concerned over the increasing numbers of psittacine birds which are discovered on ships entering ports of the United States. Naval Regulations (General Order 199) forbid the carriage of any of these birds on any naval craft, and because of their dangerous character commanding officers are directed to remove them immediately from all naval craft.

--SecNav. James Forrestal.

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ALNAV 281 BuMed (Not Restricted) 21 September 1945

Subj: Human Plasma and Serum Albumin.

Alnav 231-45 not modified relative to naval activities outside Pacific theater of operations. Effective immediately all plasma, human, dried (stock No. S1-3530 and S1-3531), and serum albumin (stock No. S1-1945) above allowances established by Alnav 231-44 will be transferred to NMSD Oakland or NMSD Brooklyn. Such reserve stocks as defined by CinCPac may be retained in Pacific Ocean Area.

--SecNav. James Forrestal.

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To: All Ships and Stations. (Not Restricted) BuMed-WM-CM P2-2/NN 26 September 1945

Subj: Sulfonamides, Local Use of.

Ref: (a) BuMed ltr. P3-2/L3(042), B-DLY, of 16 Apr. 1943, "First-Aid Instruction and Treatment of Casualties; Posters, as Visual Aids, for Instruction in Use of (1) Individual First-Aid Packet (Containing Sulfonamides) and (2) Emergency Medical Tag (New)"; N.D. Bul. Cum. Ed. 1943, 43-909, p. 469.

1. Those portions of reference (a) pertaining to the local application of sulfanilamide to wounds are herewith canceled.

2. The "Carlisle" individual first-aid kit (2-801 plain; 2-803 with camouflage) contains 5 grams of sulfanilamide powder for local application to wounds. Medical officers are directed to instruct all personnel to discard this powder at the time each such kit is opened for use.

--BuMed. Ross T McIntire.

(Not Restricted)
BuMed-PW4-McW
A12-1/OD
12 September 1945

To: All Ships and Stations.

Subj: "History of the Naval Dental Corps," Information for.

1. In order that war chapters may be written to the "History of the Naval Dental Corps" all dental officers are directed to write a brief account of their professional activities and personal experiences during the war. Such reports shall be forwarded to the Chief of the Bureau of Medicine and Surgery, via official channels.

2. District, fleet, force, base, area, and Marine division dental officers, as well as all senior dental officers are requested to write brief accounts or histories of activities under their cognizance in addition to brief reports of their own personal experiences.

3. It is desired that information concerning each dental activity include such data as the date of establishment, minimum and maximum number of dental officers attached, average number of personnel dependent upon activity for dental treatment, type of dental treatment rendered, and pictures of physical set-ups.

4. Other comments or suggestions as to how dental service could have been improved, actions taken to improve existing organizations and facilities, and such other facts as are considered of sufficient importance and interest to be of value, are desired.

5. If for security reasons the nature of information submitted so requires, it is directed that suitable classifications be assigned.

--BuMed. Ross T McIntire.

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(Not Restricted)
BuMed-MH3-TCU
P2-5/P3-1
14 September 1945

To: All Ships and Stations.

Subj: Radium Plaque Adaptometer (Night Vision) Tests: Forwarding of Monthly Reports; Retesting of Personnel; Retesting of Failures.

Refs: (a) BuPers-BuMed rest. joint ltr. P11-1, Pers-423G, P2-5/P3-1(103-51); BuMed-H-3-CRE, of 22 Mar. 1944; AS&SL Jan.-June 1944, 44-404, p. 729.
(b) BuMed ltr. to DMO all naval districts except 10, 17; CinCPac and ComServForSubComLant; P2-5/P3-1(103-41), BuMed-MH-3-DCB, of 1 Nov. 1944.

1. Paragraph 35 of reference (a), which directs pharmacist RPA technicians to forward copies of all monthly reports received from Q RPA Op (qualified radium plaque adaptometer operators) within their district or command to (1) BuMed and (2) DistCom or command, is hereby modified to the extent that copies will not be forwarded to BuMed in the future. The special monthly statistical summary of night vision tests (RPA) prepared by pharmacist RPA technicians at commands addressed in reference (b) will furnish information desired by BuMed.

2. Districts or commands to which no pharmacist RPA technician is assigned shall forward a copy of all monthly reports received from Q RPA Ops within their district or command to BuMed.

3. Attention is directed to reference (a), enclosure (2), paragraph B (Testing Procedure), subpar 12, which states that personnel are to be retested after 6 months. This shall be interpreted to mean that personnel will be tested at intervals of 6 months.

4. Personnel who fail the RPA test either as a result of their first test, or when tested at 6-month intervals, shall be retested once after approximately 10 days have elapsed and at such a time that any transient cause for the failure such as fatigue, colds, long exposure to bright sunlight, etc., will have been eliminated. Personnel who pass on retesting shall be reported as "Pass" and only those who fail the retest shall be reported as "Fail." Personnel who are retested in accordance with the provisions of this paragraph shall be designated as "Retests" on monthly reports.

--BuMed. Ross T McIntire.

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(Not Restricted)
BuMed-D
L8-2/JJ57(013)
19 September 1945

To: All Ships and Stations.

Subj: Dental Burs, Conservation of

Ref: BuMed ltr. D:HGB, L8-2/JJ57(013), of 6 June 1942; N. D. Bul. Cum. Ed. 1943, 42-123, p. 430.

1. The supply of new dental burs is adequate for the Navy's need and reference (a) is hereby canceled.

--BuMed. Ross T McIntire.

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(Not Restricted)
ALNAV 339 BuMed 13 October 1945

Subj: Marriages, Nurse Corps.

Alnav 12-45 is hereby rescinded and provisions of Manual of the Medical Department, USN, paragraph 451 (e) re-effected as of 1 November 1945. All married officers of the Nurse Corps, Naval Reserve and Regular, shall submit resignation to the Surgeon General via official channels.

Any officer of the Regular Nurse Corps who submits resignation for reason of marriage will remain on active duty until receipt of action on resignation from the Bureau of Medicine and Surgery and orders for release issued by the Bureau of Naval Personnel.

Any officer of the Nurse Corps, Naval Reserve, only who submits resignation for reason of marriage shall be released to inactive status by appropriate commands in accordance with procedures outlined in Alnav 198-45, Alnav 252-45, Alnav 282-45, pending action on her resignation by the Surgeon General.

If proof of marriage has not previously been forwarded to the Bureau of Medicine and Surgery, such proof must accompany resignation.

If not previously accomplished, request for official change of name must accompany resignation.

Until further notice, resignation of Nurse Corps officers for intention to marry will not receive favorable action.

--SecNav. A. L. Gates.

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(Not Restricted)
ALNAV 336 BuMed 12 October 1945

Subj: Expiration Date of Serum.

Expiration dates of Measles, Immune Serum Globulin human, stock number S1-1090, and Globulin Immune Serum human, stock number S1-1025, extended 2 years beyond present expiration date provided material stored according to directions on label. For remainder of dating period store not above 5°C. (40°F) and not below 0°C. (32°F.). Stock number S1-1090 and stock number S1-1025 shall not be discarded without prior authority BuMed.

--SecNav. James Forrestal.

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